

Claims

1. A braking device for an electric motor, having a  
5 rotor (10, 10') and a stator, in particular for a direct  
current series wound motor, having a brake element (20, 20')  
which is movable between a braking position and an operating  
position, wherein a brake shoe (30, 30') which brakes the  
rotor (10, 10') in the braking position is mounted on the  
10 brake element (20, 20'), characterized in that the brake shoe  
(30, 30') is mounted on the brake element (20, 20') on the  
trailing end relative to the direction of rotation of the  
rotor (10, 10').
- 15 2. The braking device of claim 1, characterized in  
that the brake element (20, 20') has a brake arm (26, 26') on  
the trailing end that carries the brake shoe (30, 30'), and  
has a disengagement arm (24, 24') on the leading end.
- 20 3. The braking device of claim 1 or 2, characterized  
in that the stator has a yoke part (14, 14') of a  
magnetically conductive material on the leading end and has a  
stator winding (18).
- 25 4. The braking device of claim 3, characterized in  
that the brake element (20, 20') is magnetically conductive  
and, together with the yoke part (16, 16') on the leading  
end, encloses a motor air gap with the rotor (10, 10') that  
in the braking position, on the leading end, has an  
30 essentially constant gap width.
5. The braking device of claim 3 or 4, characterized  
in that between the yoke part (14, 14') on the leading end  
and the disengagement arm of the brake element (20, 20'),

there is an air gap (32, 32'), and in the yoke part (14, 14') on the leading end, between the stator winding (18) and the air gap (32, 32') from the disengagement arm (24, 24') of the brake element (20, 20'), there is a constriction (34), which  
5 forms a magnetic resistor in the yoke part (14, 14') on the leading end.

6. The braking device of one of the foregoing claims,  
characterized in that the brake element (20, 20') and/or the  
10 yoke part (14, 14') on the leading end and/or the jr (16,  
16') on the trailing end has a plurality of lamination  
packets (TP1-TP8), which each comprise a plurality of  
electrical laminations and which are disposed axially  
successively relative to the pivot axis.  
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7. The braking device of one of the foregoing claims,  
characterized by a bearing pin (22, 22') for supporting the  
brake element (20, 20'), the bearing pin (22, 22') being  
supported in a fixed bearing point by a positive-engagement  
20 connection that is secure against relative rotation.

8. The braking device of one of the foregoing claims,  
characterized in that the brake element (20, 20'), in the  
braking position, rests on the trailing end on a fixed stop  
25 face (46'), and the stop face (46') has a predetermined angle  
of inclination relative to the radial direction, in order to  
attain a self-clamping of the brake element (20, 20').

9. The braking device of one of the foregoing claims,  
30 characterized in that the brake element (20, 20') is  
prestressed in the direction of the braking position by a  
compression spring (28, 28'), and a guide spur (48, 50) for  
the compression spring (28, 28') that protrudes into the  
compression spring (28, 28') is disposed on the brake element

(20, 20').

10. An electric motor having a braking device of one of the foregoing claims.

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11. A machine tool having an electric motor of claim 10.